



DNA-PK

SEQUENCE LISTING

<110> Brookhaven Science Associates  
Anderson, Carl W  
Connelly, Margery A

<120> DNA-PK Assay

<130> BSA 01-02

<140> US 09/695,437

<141> 2000-10-24

<150> US 08/398,139

<151> 1995-03-03

<150> 08/132,284

<151> 1993-10-06

<160> 64

<170> PatentIn version 3.1

<210> 1

<211> 28

<212> PRT

<213> Homo sapiens

<220>

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<223> Human p53 residues 1-28

<400> 1

Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln  
1 5 10 15

Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu  
20 25

<210> 2

<211> 28

<212> PRT

<213> Musca domestica

<220>

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<223> Mourse p53 residues 4-31

<400> 2

Met Glu Glu Ser Gln Ser Asp Ile Ser Leu Glu Leu Pro Leu Ser Gln  
1 5 10 15

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Sub  
B1

DNA-PK

Glu Thr Phe Ser Gly Leu Trp Lys Leu Leu Pro Pro  
20 25

<210> 3  
<211> 16  
<212> PRT  
<213> Musca domestica  
  
<220>  
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<223> Mouse p53 residues 4-13

<400> 3

Met Glu Glu Ser Gln Ser Asp Ile Ser Leu Glu Leu Pro Tyr Lys Lys  
1 5 10 15

<210> 4  
<211> 25  
<212> PRT  
<213> Homo sapiens  
  
<220>  
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<223> Human p53 residues 1-24

<400> 4

Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln  
1 5 10 15

Glu Thr Phe Ser Asp Leu Trp Lys Lys  
20 25

<210> 5  
<211> 25  
<212> PRT  
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<220>  
<221> MISC\_FEATURE  
<223> Human p53 residues 1-24; S15A substitution

<400> 5

Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ala Gln  
1 5 10 15

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# DNA-PK

Glu Thr Phe Ser Asp Leu Trp Lys Lys  
20 25

<210> 6  
<211> 18  
<212> PRT  
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<220>  
<221> MISC\_FEATURE  
<223> Human p53 residues 29-44

<400> 6

Asn Asn Val Leu Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met  
1 5 10 15

Lys Lys

<210> 7  
<211> 16  
<212> PRT  
<213> Homo sapiens

<220>  
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<223> Human p53 residues 160-175

<400> 7

Met Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg  
1 5 10 15

<210> 8  
<211> 15  
<212> PRT  
<213> Homo sapiens

<220>  
<221> MISC\_FEATURE  
<223> Human p53 residues 11-24

<400> 8

Glu Pro Pro Leu Ser Gln Glu Thr Phe Ser Asp Leu Trp Lys Lys  
1 5 10 15

# DNA-PK

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 <213> Homo sapiens

<220>  
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 <223> Human p53 residues 11-19

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Glu Pro Pro Leu Ser Gln Glu Thr Phe Lys Lys  
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<210> 10  
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<220>  
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Glu Pro Pro Leu Ser Gln Glu Thr Phe Ser Asp Lys Lys  
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<210> 11  
 <211> 15  
 <212> PRT  
 <213> Homo sapiens

<220>  
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 <223> Human p53 residues 11-24:T18A and S20A substitutions

<400> 11

Glu Pro Pro Leu Ser Gln Glu Ala Phe Ala Asp Leu Trp Lys Lys  
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<210> 12  
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<220>  
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# DNA-PK

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<212> PRT

<213> Homo sapiens

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<223> Human p53 residues 11-24:E17K, T18A and S20A substitutions

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Glu	Pro	Pro	Leu	Ser	Gln	Lys	Ala	Phe	Ala	Asp	Leu	Trp	Lys	Lys
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<212> PRT

<213> Homo sapiens

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<223> Human p53 residues 11-24:L14Q, Q16L, T18A and S20A substitutions

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<210> 15

<211> 15

<212> PRT

<213> Homo sapiens

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<223> Human p53 residues 11-24:L14Q, T18A and S20A substitutions

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Glu	Pro	Pro	Gln	Ser	Gln	Glu	Ala	Phe	Ala	Asp	Leu	Trp	Lys	Lys
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<210> 16

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<212> PRT  
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<210> 17  
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 <223> Human p53 residues 11-24:L14D, T18A and S20A substitutions

<400> 17

Glu	Pro	Pro	Asp	Ser	Gln	Glu	Ala	Phe	Ala	Asp	Leu	Trp	Lys	Lys
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<210> 18  
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 <223> Human p53 residues 12-24:P13E, L14E, T18A and S20A substitutions

<400> 18

Pro	Glu	Glu	Ser	Gln	Glu	Ala	Phe	Ala	Asp	Leu	Trp	Lys	Lys
1				5					10				

<210> 19  
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 <223> Human p53 residues 13-24:L13P, S14E, T18A and S20A substitutions

# DNA-PK

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Pro Glu Ser Gln Glu Ala Phe Ala Asp Leu Trp Lys Lys  
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<210> 20

<211> 15

<212> PRT

<213> Homo sapiens

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<223> Human p53 residues 11-24 with Q16E, E17Q, T18A and S20A substitutions

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Glu Pro Pro Leu Ser Glu Gln Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10 15

<210> 21

<211> 15

<212> PRT

<213> Artificial Sequence

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<223> DNA-PK assay negative control peptide

<400> 21

Glu Pro Pro Leu Ala Gln Glu Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10 15

<210> 22

<211> 15

<212> PRT

<213> Artificial Sequence

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<223> DNA-PK assay negative control peptide

<400> 22

Glu Pro Pro Leu Ala Gln Glu Thr Phe Ser Asp Leu Trp Lys Lys  
1 5 10 15

<210> 23

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

## DNA-PK

<223> DNA-PK assay negative control peptide

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Pro Glu Ser Glu Gln Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10

<210> 24

<211> 14

<212> PRT

<213> Artificial Sequence

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<223> DNA-PK assay negative control peptide

<400> 24

Pro Glu Glu Ala Gln Glu Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10

<210> 25

<211> 14

<212> PRT

<213> Artificial Sequence

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<223> DNA-PK assay negative control peptide

<400> 25

Pro Glu Glu Ser Glu Gln Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10

<210> 26

<211> 14

<212> PRT

<213> Artificial Sequence

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<223> Example of inappropriate DNA-PK negative control peptide

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Pro Glu Glu Ala Gln Glu Thr Phe Ser Asp Leu Trp Lys Lys  
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<210> 27

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> DNA effector for in vitro DNA-PK assays

# DNA-PK

<400> 27  
gcgcgcgcgc gcgcgcgcgc gcgc

24

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Pro Leu Ser Ser Ser Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr  
1 5 10 15

Gly Lys Lys

<210> 29  
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<223> Human p53 residues 306-327

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Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys Lys Pro  
1 5 10 15

Leu Asp Gly Glu Tyr  
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<210> 30  
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<212> PRT  
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<220>  
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<223> Human p53 residues 371-385

<400> 30

# DNA-PK

Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met Phe  
1 5 10 15

<210> 31  
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<212> PRT  
<213> Homo sapiens

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His Lys Lys Leu Met Phe Lys Thr Glu Gly Pro Asp Ser Asp  
1 5 10

<210> 32  
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<221> MISC\_FEATURE  
<223> Human p53 residues 11-24:Q16E, T18A and S20A substitutions

<400> 32

Glu Pro Pro Leu Ser Glu Glu Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10 15

<210> 33  
<211> 15  
<212> PRT  
<213> Homo sapiens

<220>  
<221> MISC\_FEATURE  
<223> Human p53 residues 11-24:Q16N, T18A and S20A substitutions

<400> 33

Glu Pro Pro Leu Ser Asn Glu Ala Phe Ala Asp Leu Trp Lys Lys  
1 5 10 15

<210> 34  
<211> 15  
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<213> Homo sapiens

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&lt;221&gt; MISC\_FEATURE

&lt;223&gt; Human p53 residues 11-24 with Q16Y, T18A, S20A and W23L substitutions

&lt;400&gt; 34

Glu	Pro	Pro	Leu	Ser	Tyr	Glu	Ala	Phe	Ala	Asp	Leu	Leu	Lys	Lys
1				5					10				15	

&lt;210&gt; 35

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Casein kinase I substrate

&lt;400&gt; 35

Asp	Asp	Asp	Glu	Glu	Ser	Ile	Thr	Arg	Arg
1				5				10	

&lt;210&gt; 36

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic S6 kinase substrate

&lt;400&gt; 36

Arg	Arg	Leu	Ser	Ser	Leu	Arg	Ala
1				5			

&lt;210&gt; 37

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic casein kinase II substrate

&lt;400&gt; 37

Arg	Arg	Arg	Glu	Glu	Glu	Thr	Glu	Glu	Glu
1				5				10	

&lt;210&gt; 38

&lt;211&gt; 4

&lt;212&gt; PRT

<213> Artificial

<220>

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<223> peptide fragement

<400> 38

Ser Asp Leu Trp

1

<210> 39

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic casein kinase II substrate

<400> 39

Arg Arg Arg Asp Asp Asp Ser Asp Asp Asp

1

5

10

<210> 40

<211> 17

<212> PRT

<213> Homo sapiens

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<222> (1)..(4)

<223> human hsp90 residues 1-4

<220>

<221> MISC\_FEATURE

<222> (5)..(17)

<223> human p53 residues 15-27 with S20E substitution

<400> 40

Met Pro Glu Glu Ser Gln Glu Thr Phe Glu Asp Leu Trp Lys Leu Leu

1

5

10

15

Pro

<210> 41

<211> 4

<212> PRT

# DNA-PK

<213> Homo sapiens

<220>

<221> MISC\_FEATURE

<223> human hsp90 residues 1-4

<400> 41

Met Pro Glu Glu

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<210> 42

<211> 13

<212> PRT

<213> Homo sapiens

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<221> MISC\_FEATURE

<223> human p53 residues 15 to 27 with S20E substitution

<400> 42

Ser Gln Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro

1

5

10

<210> 43

<211> 11

<212> PRT

<213> herpes simplex virus 1

<220>

<221> MISC\_FEATURE

<223> HSV 1 glycoprotein D precursor residues 289-299

<400> 43

Glu Pro Glu Leu Ala Pro Glu Asp Pro Glu Asp

1

5

10

<210> 44

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Consensus cleavage site of human adenovirus endoproteinase

<400> 44

Met Ser Gly Gly

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# DNA-PK

<210> 45  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic phosphorylation site segment

<400> 45

Met Pro Glu Glu Ser Gln Glu Thr Phe Glu Asp Leu Trp Lys Leu Leu  
 1 5 10 15

Pro Gly His His  
 20

<210> 46  
 <211> 53  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Sense strand oligonucleotide encoding DNA-PKphosphorylation segment  
 nt SEQ ID NO: 45

<400> 46  
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<210> 47  
 <211> 56  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Antisense oligonucleotide for phosphorylation site segment

<400> 47  
 gtgaccagga agtagtttcc atagatcttc gaatgtgtcc tgactttcct caggca 56

<210> 48  
 <211> 53  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Sense primer sequence

<400> 48  
 gctctagaag tcgactttta gaaggagata ccaagatgcc tgaggaaagt cag 53

# DNA-PK

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 <212> DNA  
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<220>  
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 c 61

<210> 50  
 <211> 46  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> sense primer for substrate PCR

<400> 50  
 catcaccatg gtatgagcgg cggcatggag gagcccagtg accttg 46

<210> 51  
 <211> 61  
 <212> DNA  
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<220>  
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 c 61

<210> 52  
 <211> 8  
 <212> PRT  
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<220>  
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<400> 52  
 Glu Glu Ala Gln Glu Thr Phe Glu  
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<210> 53  
 <211> 25  
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# DNA-PK

<213> Artificial Sequence  
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 <210> 54  
 <211> 26  
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 <400> 54  
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 <400> 55  
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 <210> 57  
 <211> 36  
 <212> DNA  
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 <223> sense strand for multiple cloning site  
 <400> 57  
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# DNA-PK

<210> 58  
 <211> 36  
 <212> DNA  
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<220>  
 <223> complement of SEQ ID NO: 57 multiple cloning site

<400> 58  
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36

<210> 59  
 <211> 177  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> sequence of Human Oct-1 POU domain with His6 tag, expressed from plasmid pT7HPOU1

<400> 59

Met Ala Ser Met Thr Gly His His His His His His Gly Met Ser Gly  
 1 5 10 15

Gly Met Glu Glu Pro Ser Asp Leu Glu Glu Leu Glu Gln Phe Ala Lys  
 20 25 30

Thr Phe Lys Gln Arg Arg Ile Lys Leu Gly Phe Thr Gln Gly Asp Val  
 35 40 45

Gly Leu Ala Met Gly Lys Leu Tyr Gly Asn Asp Phe Ser Gln Thr Thr  
 50 55 60

Ile Ser Arg Phe Glu Ala Leu Asn Leu Ser Phe Lys Asn Met Cys Lys  
 65 70 75 80

Leu Lys Phe Leu Leu Glu Lys Trp Leu Asn Asp Ala Glu Asn Leu Ser  
 85 90 95

Ser Asp Ser Ser Leu Ser Ser Pro Ser Ala Leu Asn Ser Pro Gly Ile  
 100 105 110

Glu Gly Leu Ser Arg Arg Arg Lys Lys Arg Thr Ser Ile Glu Thr Asn  
 115 120 125

Ile Arg Val Leu Glu Lys Ser Phe Leu Glu Asn Gln Lys Pro Thr Ser  
 130 135 140

# DNA-PK

Glu Glu Ile Thr Met Ile Ala Asp Gln Leu Asn Met Glu Lys Glu Val  
145 150 155 160

Ile Arg Val Trp Phe Cys Asn Arg Arg Gln Lys Glu Lys Arg Ile Asn  
165 170 175

Pro

<210> 60  
<211> 5005  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> nucleotide sequence of pT7HPOU1

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ggcaagagca actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac 900  
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcc 960  
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 1020

# DNA-PK

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# DNA-PK

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<213> Artificial Sequence

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<400> 61

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Pro Gly His His His His His His Gly Met Ser Gly Gly Met Glu Glu
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Pro Ser Asp Leu Glu Glu Leu Glu Gln Phe Ala Lys Thr Phe Lys Gln
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Arg Arg Ile Lys Leu Gly Phe Thr Gln Gly Asp Val Gly Leu Ala Met
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Gly Lys Leu Tyr Gly Asn Asp Phe Ser Gln Thr Thr Ile Ser Arg Phe
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Glu Ala Leu Asn Leu Ser Phe Lys Asn Met Cys Lys Leu Lys Pro Leu
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# DNA-PK

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145 150 155 160

Thr Met Ile Ala Asp Gln Leu Asn Met Glu Lys Glu Val Ile Arg Val  
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## DNA-PK

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# DNA-PK

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## DNA-PK

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1 5 10 15

Lys Lys

*Sub  
B1  
concluded*